REVISED CORRECTIVE MEASURES WORKPLAN
FORMER SAN BRUNO CHANNEL

November 7, 2006

Prepared for:
Haskins Brothers
Cherokee San Francisco, L.L.C.
Cherokee Grand Avenue, L.L.C.

Prepared by:

EnviroAssets, Inc.
2450 Washington Ave., Suite 270
San Leandro, CA 94577

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San Leandro, California 94577

Respectfully Submitted,

Michael Harrison, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. HARRISON
NO. C57319
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CIVIL
STATE OF CALIFORNIA

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1.0 INTRODUCTION

On behalf of Haskins Brothers ("Haskins") and Cherokee San Francisco, L.L.C. and Cherokee Grand Avenue, L.L.C. ("Cherokee"), EnviroAssets, Inc. ("EnviroAssets") has prepared this revised Corrective Measures Workplan ("Workplan") for the Former San Bruno Channel property at 500 E Jamie Court, South San Francisco, California ("Property"). The Property location is presented on Figure 1.

Multiple environmental investigations of the Property have indicated that areas of the Property's soils and sediments are impacted by lead and semivolatile organic compounds ("SVOCs"). In October 2000, Henshaw Associates, Inc. prepared a conceptual Corrective Measures Workplan for the Property. The conceptual plan for the remediation activity was approved by the California Regional Water Quality Control Board ("RWQCB" or "Water Board") in a letter dated August 22, 2000 (Appendix A). The Bay Conservation Development Commission ("BCDC"), however, provided comments to the Water Board requesting that fill within its marsh jurisdiction be minimized. Therefore, this Workplan presents a revised plan to mitigate the environmentally impacted areas at the Property, and was prepared pursuant to the Technical Report Request of the San Francisco Bay Regional Water Quality Control Board (Region 2, Water Board), August 22, 2000, and the Request for [Revised] Technical Report - San Bruno Channel (May 14, 2004, Appendix A).

2.0 PURPOSE AND SCOPE

This document provides an overview of the Property, a summary of objectives, and a scope of work intended to mitigate the environmental impairments existing at the Property. The proposed remediation, grading, and revegetation activities will minimize exposure to impacted soil and sediments while minimizing impacts to tidal wetlands. The Scope of Work has been revised to accommodate BCDC comments requesting that fill be minimized within the BCDC's marsh jurisdiction (Water Board, May 14, 2004, Appendix A).

2.1 Physical Setting

The Property is a low-lying, approximately 2-acre area of artificial fill that is all that remains of an old shipping channel filled by Haskins in the late 1960's and early 1970's. The Property is bounded by the San Francisco Bay to the East, the South San Francisco Scavengers transfer station to the South ("Scavengers", the former Haskins Landfill), the Britannia East Grand development to the North ("Britannia", the former Fuller-O'Brien facility), and the Yellow Freight Company to the West. A City of South San Francisco stormwater outfall discharges to the western-most portion of the Property.

2.2 Environmental Setting

Significant environmental investigations have been conducted on the Property. Most notably the *San Bruno Channel Fill Investigation* (the Mark Group, March 1989), and the *Supplemental Remedial Investigation Report* (Risk-Based Decisions, Inc., January 14, 2000). As discussed in the Mark Group report, the Property fill includes industrial wastes and construction debris of an indeterminate depth. Both of these reports have indicated that elevated concentrations of lead can be found in Property sediments and extend to an indeterminate depth. Concentrations of SVOCs have also been encountered in fill sediments, collocated with lead concentrations. In 1975, the Army Corps of Engineers completed an environmental assessment on fill surrounding and including the Property and concluded that it was "not economically feasible" to restore the marine habitat that existed prior to fill activities. In June 2001, Wetlands Research Associates, Inc., completed an assessment of the presence of wetlands and waters that may be subject to federal jurisdiction under the Clean Water Act (Appendix B). The assessment concluded that approximately 0.6 acres of tidal wetlands exist on the Property (Figure 2). Review of these investigations has shown that the majority of the impacted soil and sediment exist in the portion of the Property west of the tidal wetlands. An overlay of the wetland designations along with soil and sediment sampling locations exceeding the 200 mg/Kg lead in soil Water Board Environmental Screening Level for ecological impact is presented in Figure 3. Historical analytical results for lead in sediments are presented in Table 1. Summaries of SVOCs in sediments prepared by Risk Based Decisions, Inc. (RBD, 2000) are included in Appendix C.

H.T. Harvey & Associates ("Harvey"), an ecological firm specializing in wetland issues, has evaluated the flora and fauna of the Property in light of the proposed corrective measures. Its evaluation and recommendations for revegetation and mitigation procedures were prepared in a companion work plan to this document, included as Appendix D.

3.0 SCOPE OF WORK

The revised Scope of Work will minimize the migration of impacted sediments from the Property while minimizing placement of fill materials within the BCDC marsh jurisdiction and impacts to wetland areas. The comprehensive strategy will accomplish these goals by:

- Removing and replacing the top three feet of impacted sediments within approximately 0.34 acres of impacted wetlands;
- Creating approximately 0.26 acres of new wetlands adjacent to the remediated area;
- Moving excavated sediments and grading spoils onto designated portions of the property (including approximately 0.11 acres of existing impacted wetland) and capping them with approximately two feet of clean fill; and
- Revegetating the disturbed areas with native flora.

The impacts to 0.11 acres of U. S. Army Corps of Engineer (USACE) jurisdictional habitat and BCDC non-tidal wetland habitat will be substantially offset by creation of new on-site wetlands that will be over twice the size (0.26 acres) of the impacted wetlands and remediation of another 0.34 acres of impacted wetlands. The City of South San Francisco storm sewer outfall, currently discharging at the western edge of the Property, will be extended approximately 260 feet (reduced from 630 feet in the original workplan). The work will also include construction of a section of Bay Trail that will join the Scavengers and Britannia portions of the trail (Figure 4), providing public benefits by enhancing environmental objectives and public access to the San Francisco Bay.

3.1 Sewer Outfall Extension

Currently, a City of South San Francisco 30-inch diameter storm sewer outfall that drains the eastern area of East Grand Avenue discharges approximately 125-feet east of the western boundary of the Property. During grading and fill activities, this outfall will be extended approximately 260 feet to the eastern edge of the area proposed for filling (Figure 4). Native willow plantings are proposed for the vicinity of the outfall (Appendix D) to resist the potential for scouring from outfall discharges during rainfall events. The sewer outfall will be extended according to City of South San Francisco specifications.

3.2 Grading and Backfilling

Areas proposed for remediation, grading, and filling are depicted on Figure 4. These areas were chosen based upon the wide distribution of impacted sediments in the areas. One sample (AB1) east of the proposed remediation and fill areas was found to contain elevated concentrations of lead (Figure 4). As multiple samples collected proximate to this sample did not contain elevated

levels of contaminants of concern, the lead found in the aforementioned location is not believed to be indicative a larger area with uniformly high concentrations of lead. Based on this conclusion, the potential benefit of decreased risk to human health and the environment does not offset the cost of potential damage to the tidal marsh habitat caused by remediation activities.

Initial site work at the property will involve clearing and grubbing the areas proposed for remediation, grading, and fill (Figure 4). The work will likely require that a coffer dam be installed across the eastern portion of the Property to permit dewatering of saturated sediments prior to remediation and grading activities. After vegetation has been removed from the property, the proposed remediation and fill area will be graded so that a consistent depth of clean fill can be placed across the entire proposed fill area. Approximate final grades are provided on Figure 4. After impacted sediments have been placed upon the upland areas, a plastic mesh will be placed over the fill to provide a clear demarcation between clean, imported fill and newly graded soils and sediments. Clean fill for upland areas, defined as uncontaminated, nonwater-soluble, and nondecomposable inert solid material, will be used to cover impacted sediments to a minimum of two feet above new grade. The clean fill shall be inspected prior to use for odor, staining, and other indications of debris or contamination. As further discussed in Appendix D, fill placed within wetland areas will meet the RWQCB Sediment Screening Criteria for wetland surface and foundation material. Permitting activities will include a grading permit from the City of South San Francisco.

3.3 Bay Trail

The Bay Trail extension completed at the Scavengers transfer station facility currently terminates at the northeastern edge of its facility. The Britannia development is currently developing its own Bay Trail, which will terminate immediately north of the Property. This Workplan proposes that the Bay Trail follow the perimeter of the wetland areas at the Property, as shown on Figure 4. Please note that the revised topography and Bay Trail alignment depicted on the Lands of Slough on Figure 4 are strictly hypothetical. No authority or interest in the Lands of Slough is suggested. As shown on the Mitigation Design (Figure 2, Appendix D), tree plantings are proposed upland of the new trail to provide Bay Trail users a screen from neighboring commercial activities.

3.4 Wetland Mitigation

The revised plan includes significant mitigation measures to offset loss of approximately 0.11 acres of tidal wetlands including:

- Remediation of 0.34 acres of tidal wetland habitat;
- Creation of 0.26 acres of muted tidal marsh habitat;

- Partial removal of blockage across the mouth of the channel to restore tidal action and increase the wildlife functions and values of the habitats within the channel;
- Eradication of non-native species that are currently pervasive throughout the salt marsh portions of the channel; and
- Revegetation of all disturbed areas, newly graded areas, and areas of non-native eradication with native vegetation appropriate to the hydrologic setting

These measures are described in detail in Appendix D.

4.0 REQUIRED PERMITS

Permits will be required from the Water Board, the BCDC, the Army Corps of Engineers, and the Fish and Game commission. Additionally, a grading permit will be required from the City of South San Francisco.

5.0 INSTITUTIONAL CONTROLS

As elevated concentrations of chemicals of concern will be left in the subsurface under this conceptual Scope of Work, institutional controls for these Corrective Measures will include deed restrictions.

6.0 PROJECT SCHEDULE

The project schedule will be highly dependent upon permitting requirements and climatic seasons. The project partners (Cherokee and Haskins) appreciate the commitment from the Water Board to assist in the permitting process. The following project requirements are anticipated:

- Permitting activities are expected to require from six to nine months
- Grading and fill work shall be conducted during the Bay Area dry season which is generally accepted to be from May through October
- As discussed with the Water Board, for this project to be financial viable, some time must be allotted to locating competitively priced clean fill material (upland and wetland).

Actual grading and filling activities are expected to occur over a three to four month period.

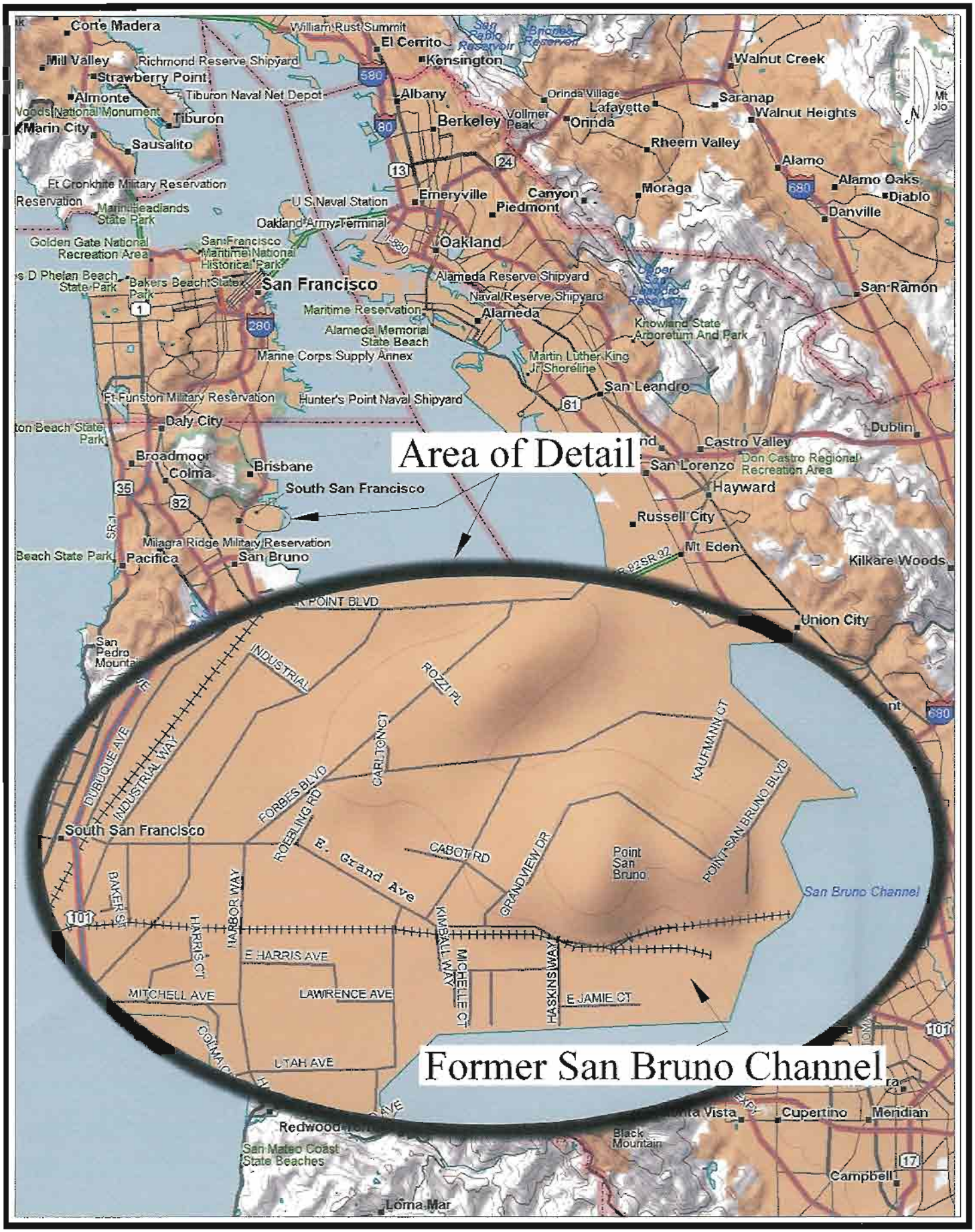
7.0 REFERENCES

Henshaw Associates, Inc., "*Former San Bruno Channel Corrective Measures Workplan*", October 3, 2000.

Risk-Based Decisions, Inc., *Supplemental Remedial Investigation Report for the Haskins Property*, January 14, 2000.

The Mark Group, *San Bruno Channel Fill Investigation*, March 3, 1989.

FIGURES



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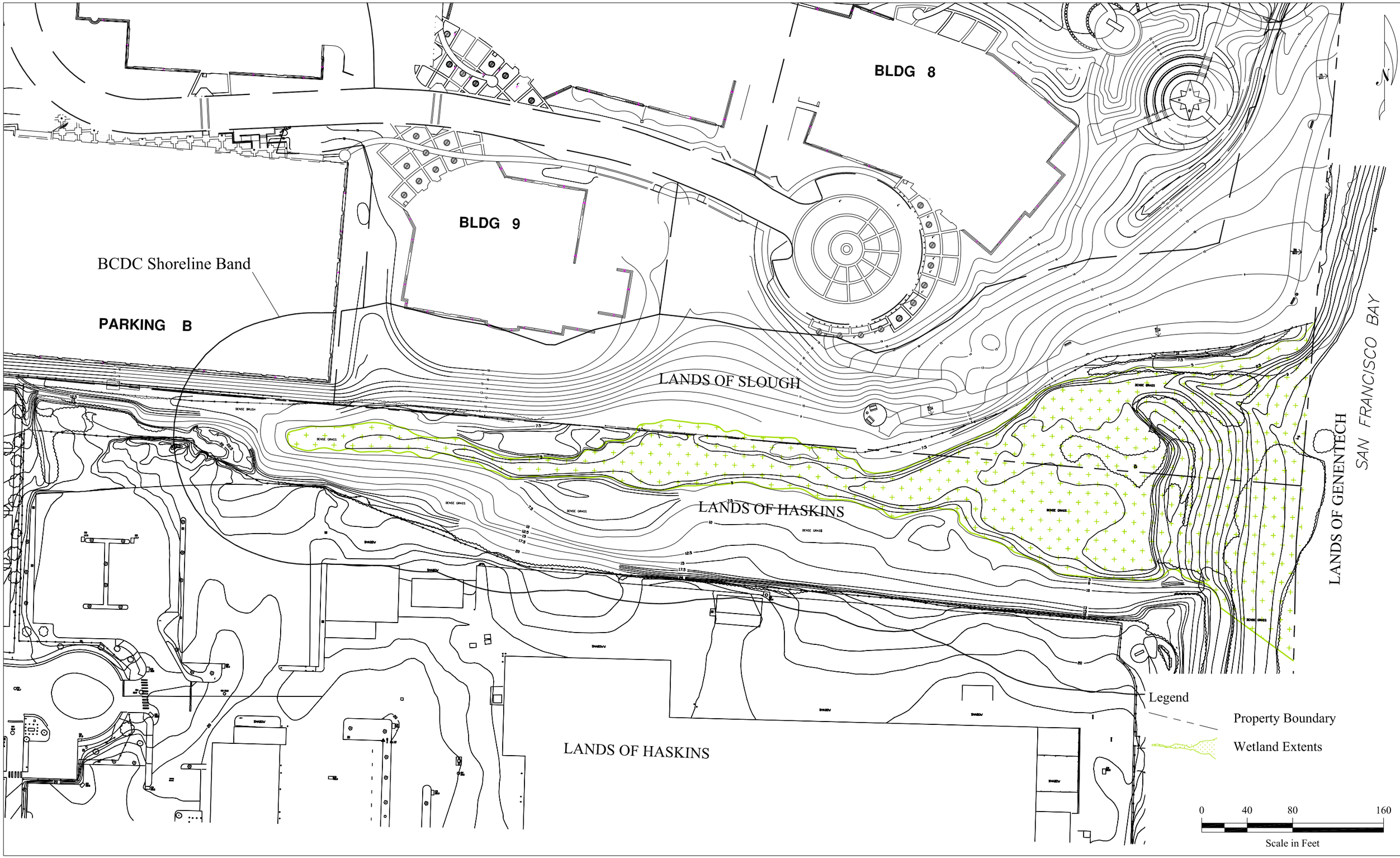
Rev. No	Date	Approved

Date	11/7/2008
Drawn	MR
File Name	EA4907-06

PROPERTY VICINITY MAP
Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California

Figure
1
Project
EA008



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PROPERTY LAYOUT - EXISTING
Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California

Figure
2
Project
EA008

BLDG 8

BLDG 9

MATCH LINE SEE SHEET L4.3B

BCDC Shoreline Band

PARKING B

LANDS OF SLOUGH

LANDS OF HASKINS

LANDS OF HASKINS

LANDS OF GENENTECH

SAN FRANCISCO BAY

N

HSB-01
HSB-01B
HSB-02
HSB-03
HSB-03B
HSB-04
HSB-05
HSB-06
HSB-07
HSB-08
HSB-09
HSB-10
HSB-11
HSB-12
HSB-13
HSB-14
HSB-15
HSB-16
HSB-17

H1
H1J
H2
H3
G1
G2
G3
F1
F2
E1
E2
E3
E4
D1
D2
D3
D4
D5
C1
C2
C3
BC1
BC2
A1
A2
A3
A4
A5
A6
A7
B1
B2
B3
B4
B5

DENSE BRUSH
DENSE GRASS
SHADOW

Legend

Property Boundary

Wetland extents

HSB-16 Sample location (lead <200 mg/Kg)

HSB-17 Sample location (lead >200 mg/Kg)

0 40 80 160

Scale in Feet

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INVESTIGATION OVERVIEW

Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California

Figure	3
Project	EA008

BLDG 8

BLDG 9

BCDC Shoreline Band

PARKING B

LANDS OF SLOUGH

LANDS OF GENENTECH

LANDS OF HASKINS

SAN FRANCISCO BAY

N

Area proposed for filling (0.11 acres)

Area proposed for remediation (0.34 acres)

Area proposed for wetland creation (0.26 acres)

SS HH1 H1 GH1 G1 G2 G3 F1 F2 F3 F4 E1 E2 E3 E4 D1 D2 D3 D4 D5 C1 BC2 BC1 B1 B2 B3 B4 B5 A1 A2 A3 A4 A5 A6 A7

HSB-01 HSB-01B HSB-02 HSB-03 HSB-03B HSB-04 HSB-05 HSB-06 HSB-07 HSB-08 HSB-09 HSB-10 HSB-11 HSB-12 HSB-13 HSB-14 HSB-15 HSB-16 HSB-17

Legend

- Property Boundary
- Wetland extents
- HSB-16 Sample location (lead <200 mg/Kg)
- HSB-17 Sample location (lead >200 mg/Kg)
- Proposed Bay Trail alignment

Note: F

0 40 80 160

Scale in Feet

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PROPERTY LAYOUT - PROPOSED
Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California

Figure 4
Project EA008

TABLES

TABLE 1: LEAD IN SEDIMENTS SUMMARY

Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California
(results in mg/Kg)

Sample Location	Field Sample ID	Sample Date	Depth (ft.)	Analyte	Result
A1	A1-1	12/6/1988-1/29/1989	1	Lead	6
A1	A1-2	12/6/1988-1/29/1989	2	Lead	71
A2	A2-1	12/6/1988-1/29/1989	1	Lead	80
A2	A2-2	12/6/1988-1/29/1989	2	Lead	140
A2	A2-3	12/6/1988-1/29/1989	3	Lead	110
A3	A3-1	12/6/1988-1/29/1989	1	Lead	53
A3	A3-2	12/6/1988-1/29/1989	2	Lead	59
A3	A3-3	12/6/1988-1/29/1989	3	Lead	55
A4	A4-1	12/6/1988-1/29/1989	1	Lead	46
A4	A4-2	12/6/1988-1/29/1989	2	Lead	51
A4	A4-3	12/6/1988-1/29/1989	3	Lead	60
A5	A5-2	12/6/1988-1/29/1989	2	Lead	43
A6	A6-1	12/6/1988-1/29/1989	1	Lead	43
A7	A7-2	12/6/1988-1/29/1989	2	Lead	67
AB1	AB1-1	12/6/1988-1/29/1989	1	Lead	1200
AB1	AB1-2	12/6/1988-1/29/1989	2	Lead	120
B1	B1-1	12/6/1988-1/29/1989	1	Lead	95
B1	B1-2	12/6/1988-1/29/1989	2	Lead	100
B1	B1-3	12/6/1988-1/29/1989	3	Lead	99
B2	B2-1	12/6/1988-1/29/1989	1	Lead	43
B2	B2-3	12/6/1988-1/29/1989	3	Lead	38
B3	B3-2	12/6/1988-1/29/1989	2	Lead	51
B4	B4-1	12/6/1988-1/29/1989	1	Lead	56
B5	B5-1	12/6/1988-1/29/1989	1	Lead	48
B5	B5-2	12/6/1988-1/29/1989	2	Lead	48
B5	B5-3	12/6/1988-1/29/1989	3	Lead	110
BC1	BC1-1	12/6/1988-1/29/1989	1	Lead	210
BC1	BC1-2	12/6/1988-1/29/1989	2	Lead	470
BC2	BC2-1	12/6/1988-1/29/1989	1	Lead	4000
BC2	BC2-2	12/6/1988-1/29/1989	2	Lead	150
C1	C1-1	12/6/1988-1/29/1989	1	Lead	290
C1	C1-2	12/6/1988-1/29/1989	2	Lead	930
C1	C1-3	12/6/1988-1/29/1989	3	Lead	20
C2	C2-1	12/6/1988-1/29/1989	1	Lead	85

TABLE 1: LEAD IN SEDIMENTS SUMMARY

Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California
(results in mg/Kg)

Sample Location	Field Sample ID	Sample Date	Depth (ft.)	Analyte	Result
C2	C2-2	12/6/1988-1/29/1989	2	Lead	470
C3	C3-1	12/6/1988-1/29/1989	1	Lead	100
C3	C3-2	12/6/1988-1/29/1989	2	Lead	84
C3	C3-3	12/6/1988-1/29/1989	3	Lead	80
CS	CS-1	9/15/1999	1	Lead	350
CS	CS-3	9/15/1999	3	Lead	2610
CS	CS-5	9/15/1999	5	Lead	826
D1	D1-1	12/6/1988-1/29/1989	1	Lead	270
D2	D2-1	12/6/1988-1/29/1989	1	Lead	1200
D2	D2-2	12/6/1988-1/29/1989	2	Lead	1300
D2	D2-3	12/6/1988-1/29/1989	3	Lead	620
D3	D3-1	12/6/1988-1/29/1989	1	Lead	220
D3	D3-2	12/6/1988-1/29/1989	2	Lead	45
D3	D3-3	12/6/1988-1/29/1989	3	Lead	190
D4	D4-1	12/6/1988-1/29/1989	1	Lead	130
D4	D4-2	12/6/1988-1/29/1989	2	Lead	460
D4	D4-3	12/6/1988-1/29/1989	3	Lead	170
D5	D5-1	12/6/1988-1/29/1989	1	Lead	290
DE1	DE1-1	12/6/1988-1/29/1989	1	Lead	220
DE1	DE1-2	12/6/1988-1/29/1989	2	Lead	2560
E2	E2-1	12/6/1988-1/29/1989	1	Lead	170
E2	E2-3	12/6/1988-1/29/1989	3	Lead	21200
E3	E3-2	12/6/1988-1/29/1989	2	Lead	16100
E3	E3-4	12/6/1988-1/29/1989	4	Lead	12100
E3	E3-5	12/6/1988-1/29/1989	5	Lead	13200
E4	E4-1	12/6/1988-1/29/1989	1	Lead	4160
F1	F1-1	12/6/1988-1/29/1989	1	Lead	1600
F1	F1-2	12/6/1988-1/29/1989	2	Lead	210
F1	F1-3	12/6/1988-1/29/1989	3	Lead	360
F2	F2-1	12/6/1988-1/29/1989	1	Lead	4300
F2	F2-2	12/6/1988-1/29/1989	2	Lead	100
G1	G1-1	12/6/1988-1/29/1989	1	Lead	120
G1	G1-2	12/6/1988-1/29/1989	2	Lead	140
G1	G1-3	12/6/1988-1/29/1989	3	Lead	140

TABLE 1: LEAD IN SEDIMENTS SUMMARY

Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California
(results in mg/Kg)

Sample Location	Field Sample ID	Sample Date	Depth (ft.)	Analyte	Result
G2	G2-1	12/6/1988-1/29/1989	1	Lead	55
G2	G2-2	12/6/1988-1/29/1989	2	Lead	10400
G2	G2-3	12/6/1988-1/29/1989	3	Lead	520
G3	G3-1	12/6/1988-1/29/1989	1	Lead	110
G3	G3-2	12/6/1988-1/29/1989	2	Lead	310
GH1	GH1-1	12/6/1988-1/29/1989	1	Lead	35
GH1	GH1-2	12/6/1988-1/29/1989	2	Lead	230
GH1	GH1-3	12/6/1988-1/29/1989	3	Lead	81
H1	H1-1	12/6/1988-1/29/1989	1	Lead	71
H1	H1-2	12/6/1988-1/29/1989	2	Lead	69
HJ1	HJ1-1	12/6/1988-1/29/1989	1	Lead	28
HJ1	HJ1-2	12/6/1988-1/29/1989	2	Lead	47
HSB-01	HSB-1-1	9/16/1999	1	Lead	565
HSB-01B	HSB-1B-1	9/16/1999	1	Lead	227
HSB-01B	HSB-1B-3	9/16/1999	3	Lead	51.4
HSB-01B	HSB-1B-5	9/16/1999	5	Lead	10.3
HSB-02	HSB-2-1	9/16/1999	1	Lead	49.4
HSB-02	HSB-2-3	9/16/1999	3	Lead	41.4
HSB-02	HSB-2-5	9/16/1999	5	Lead	5980
HSB-03	HSB-3-1	9/16/1999	1	Lead	81.l
HSB-03B	HSB-3B-1	9/16/1999	1	Lead	179
HSB-03B	HSB-3B-3	9/16/1999	3	Lead	2570
HSB-03B	HSB-3B-5	9/16/1999	5	Lead	741
HSB-04	HSB-4-1	9/16/1999	1	Lead	36
HSB-04	HSB-4-3	9/16/1999	3	Lead	270
HSB-04	HSB-4-5	9/16/1999	5	Lead	17.2
HSB-05	HSB-5-1	9/16/1999	1	Lead	75300
HSB-05	HSB-5-3	9/16/1999	3	Lead	418
HSB-05	HSB-5-5	9/16/1999	5	Lead	24.5
HSB-06	HSB-6-1	9/16/1999	1	Lead	7780
HSB-06	HSB-6-3	9/16/1999	3	Lead	4890
HSB-06	HSB-6-5	9/16/1999	5	Lead	16900
HSB-07	HSB-7-1	9/16/1999	1	Lead	23700
HSB-07	HSB-7-3	9/16/1999	3	Lead	9760

TABLE 1: LEAD IN SEDIMENTS SUMMARY

Corrective Measures Workplan
Former San Bruno Channel
South San Francisco, California
(results in mg/Kg)

Sample Location	Field Sample ID	Sample Date	Depth (ft.)	Analyte	Result
HSB-07	HSB-7-5	9/16/1999	5	Lead	1230
HSB-08	HSB-8-5	9/16/1999	5	Lead	335
HSB-08	HSB-8-10	9/16/1999	10	Lead	9.44
HSB-08	HSB-8-15	9/16/1999	15	Lead	8.94
HSB-08	HSB-8-18	9/16/1999	18	Lead	31
HSB-09	HSB-9-1	9/16/1999	1	Lead	983
HSB-09	HSB-9-3	9/16/1999	3	Lead	27.6
HSB-09	HSB-9-5	9/16/1999	5	Lead	43.6
HSB-10	HSB-10-5	9/16/1999	5	Lead	19100
HSB-10	HSB-10-10	9/16/1999	10	Lead	8.17
HSB-10	HSB-10-15	9/16/1999	15	Lead	3.25
HSB-10	HSB-10-18	9/16/1999	18	Lead	7.93
HSB-11	HSB-11-1	9/15/1999	1	Lead	2490
HSB-11	HSB-11-3	9/15/1999	3	Lead	1480
HSB-11	HSB-11-5	9/15/1999	5	Lead	600
HSB-12	HSB-12-1	9/15/1999	1	Lead	1200
HSB-12	HSB-12-3	9/15/1999	3	Lead	148
HSB-12	HSB-12-5	9/15/1999	5	Lead	82.7
HSB-13	HSB-13-1	9/15/1999	1	Lead	4730
HSB-13	HSB-13-3	9/15/1999	3	Lead	7950
HSB-13	HSB-13-5	9/15/1999	5	Lead	10300
HSB-14	HSB-14-1	9/15/1999	1	Lead	9790
HSB-14	HSB-14-3	9/15/1999	3	Lead	18700
HSB-14	HSB-14-5	9/15/1999	5	Lead	16.9
HSB-15	HSB-15-3	9/15/1999	3	Lead	6350
HSB-16	HSB-16-3	9/15/1999	3	Lead	91.3
HSB-17	HSB-17-3	9/15/1999	3	Lead	3220
SS	SS-0	9/16/1999	0	Lead	20.4

APPENDIX A
Regulatory Correspondence

California Regional Water Quality Control Board
San Francisco Bay Region

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Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

August 22, 2000
File No. 41S0145 (mrf)

Mr. Brent Anderson
Vice President
Cherokee Environmental Risk
Management
5445 DTC Parkway, Suite 900
Englewood, CO 80111

Mr. Richard Haskins
114 South Maple Avenue
South San Francisco, CA 94080

Subject: Technical Report Request - San Bruno Channel, South San Francisco, San Mateo County, California

Dear Sirs:

Regional Board staff have reviewed the Draft San Bruno Channel Conceptual Corrective Measures Workplan (conceptual workplan), dated June 12, 2000, prepared by Henshaw Associates. The conceptual workplan recommends capping the impacted area of the property and extending the City of South San Francisco storm sewer outfall past the area of concern, and includes some mitigation actions for loss of approximately 0.22 acres of non-tidal wetland. While the conceptual workplan does not go into any great detail, it appears to be in line with what has been discussed with Board staff in the past with respect to a remedy. At this point, we would like you to move to the next step and finalize the document. This report must be detailed and contain a complete scope of work and schedule for implementation. The schedule for implementation should allow for completion of the work during this calendar year. Please submit this report to the Board no later than September 20, 2000. Board staff recognize that permits will be required from various agencies before this work may move forward. We would like to work with you in this regard to move these permits through the approval process as quickly as possible, as a delay in permitting may stall implementation.

This request for a technical report is made pursuant to Water Code 13267, which allows the Board to require technical reports from Persons whose activities may have an impact on water quality. You may be subject to administrative civil liability of up to $1,000 per day pursuant to Water Code Section 13268 if you fail to respond, respond late, or submit an inadequate response. Any extensions in the above deadline must be confirmed in writing by Board staff.

If you have any questions, please contact Michelle Rembaum-Fox at (510) 622-2387 or e-mail at mrf@rb2.swrcb.ca.gov.

Sincerely,

Lawrence P. Kolb
Acting Executive Officer

Stephen A. Hill
Chief, Toxics Cleanup Division

cc: Gary Royce, Esq.
Modena & Royce
421 Grand Avenue, Suite A
So. San Francisco, CA 94980

Michael Harrison
Henshaw Associates
11875 Dublin Blvd.
Dublin, CA 94568

California Regional Water Quality Control Board
San Francisco Bay Region

'erry Tamminen
Secretary for Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
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Arnold Schwarzenegger
Governor

CERTIFIED MAIL

May 14, 2004
File No. 41S0145(mrf)

70053110000265564074
Slough Estates USA Inc.
Attn: Mr. Jon Bergschneider
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Cherokee Environmental
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Attn: Mr. Robert Kovalack
925 Euclid Avenue, Suite 900
Cleveland, OH 44115-1487

70033110000265564104
O'Brien Corporation
Attn: Mr. Jerome Crowley
2483 Old Middlefield Road, Suite 103
Mountain View, CA 94043

70033110000265564111
Mr. Richard Haskins
114 South Maple Avenue
South San Francisco, CA 94080

Subject: Request for Technical Report – San Bruno Channel, South San Francisco, California

Dear Sirs:

This is written to request a revised Corrective Measures Workplan (workplan) for the subject property. Water Board staff reviewed the workplan for the subject property, dated October 3, 2000, prepared by Henshaw Associates on behalf of Haskins Brothers and Cherokee Environmental. On May 29, 2002, Board staff met with Richard Haskins, Cherokee Environmental's representative (Michael Harrison), and San Francisco Bay Conservation and Development Commission (BCDC) and discussed the

proposed workplan for the San Bruno Channel. The workplan does not contain adequate detail on the areas of excavation and fill. In order for Water Board and BCDC Staff to fully review, understand and ultimately approve remedial actions on the property, additional detail must be included in the workplan.

As you know, portions of the San Bruno Channel fall within the jurisdiction of the BCDC. Therefore, BCDC must concur with proposed remedial measures and issue the appropriate permits. At our meeting, BCDC staff agreed to conduct a site visit to formally determine the extent of their jurisdiction within the San Bruno Channel. Based on BCDC's site visit it was determined that all of the San Bruno Channel falls within their jurisdiction and their concurrence with any proposed remedial measures is required in order for them to issue the appropriate permits for the activities. Please find enclosed, a copy of the July 22, 2002, letter submitted by BCDC.

We hereby require that you submit a revised workplan, which includes a remedial action implementation schedule for the San Bruno Channel by July 1, 2004. The revised workplan must address concerns by BCDC's staff regarding the placement of minimum fill in their jurisdictional area as discussed in their July 22, 2002, letter. Additionally, you are required to obtain a permit from BCDC for any placement of fill in the Bay or shoreline band jurisdictions. Please work with BCDC staff to ensure the revised workplan can be approved under BCDC Commission's laws and policies regarding fill in the Bay. The BCDC permitting process involves the submittal of a permit application, determination by BCDC staff that the application is complete, and the approval of the draft permit either on consent calendar or through a public hearing and vote by the BCDC Commission. This process can take from two to six months and would depend upon the revised workplan and the amount of fill proposed in the Bay. Board staff as well as BCDC staff are available to meet during preparation of the revised workplan, if needed.

This request for a technical report is made pursuant to Water Code 13267, which allows the Board to require technical reports from persons whose activities have an impact on water quality. You may be subject to administrative civil liability of up to $1,000 per day pursuant to Water Code Section 13268 if you fail to respond, respond late, or submit an inadequate response. Any extension in the above must be confirmed in writing by Board Staff.

Should you have any questions or would like to meet to discuss this matter, please contact Michelle Rembaum-Fox of my staff at (510) 622-2387 at mrf@rb2.swrcb.ca.gov.

Sincerely,

for Bruce H. Wolfe
Executive Officer

Enclosure

cc/enc : Andrea Gaut
BCDC
50 California Street, Suite 2600
San Francisco, CA 94111

Gary Royce, Esq
Modena & Royce
421 Grand Ave., Suite A
So. San Francisco, CA 94080

Michael Harrison
Enviro Assets, Inc
2450 Washington Ave., Suite 150
San Leandro, CA 94578

Tom Graff
GeoSyntec
1500 Newell Ave., # 800
Walnut Creek, CA 94596

Tom Sparks
City of South San Francisco
Planning Department
PO Box 711
So. San Francisco, CA 94083

STATE OF CALIFORNIA
GRAY DAVIS, *Governor*

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
50 CALIFORNIA STREET, SUITE 2600
SAN FRANCISCO, CALIFORNIA 94111
PHONE: (415) 352-3600
http://www.bcdc.ca.gov

July 22, 2002

Michael Harrison, P.E.
EnviroAssets, Inc.
2020 Howe Drive
San Leandro, California 94578

SUBJECT: Former San Bruno Channel Corrective Measures Workplan

Dear Mr. Harrison:

Thank you for taking the time to review the *Former San Bruno Channel Corrective Measures Workplan*, dated October 3, 2000, with me, my co-worker Bob Batha, the Haskins, and Mark Johnson and Michelle Rembaum of the Regional Water Quality Control Board at the Commission's offices on May 29. At our meeting we discussed the *Workplan* and your proposal to grade and fill the "non-tidal" wetland area. Bob Batha and I noted that the "non-tidal" wetland area is likely within the Commission's tidal marsh jurisdiction and thus, fill in the marsh should be avoided.

As you know, Bob Batha and I visited the former San Bruno Channel on June 18 to determine the Commission's jurisdiction in the area. Our site visit confirmed that the Commission does have tidal marsh jurisdiction in the channel, following the five-foot-above-mean-sea-level line. Therefore, we suggest that the *Workplan* be modified to minimize fill in the Commission's marsh jurisdiction (i.e., removing contaminated material and filling excavated areas with clean material). The current *Workplan* could likely not be approved by our Commission because it would involve fill in a tidal marsh. I am happy to work with you to determine a remediation approach that would be consistent with the Commission's laws and policies. Please feel free to call me at (415) 352-3618.

Sincerely,

Andrea M. Gaut
Coastal Program Analyst

cc: San Francisco Bay Regional Water Quality Control Board; Attn: Michelle Rembaum and Mark Johnson

Making San Francisco Bay Better

August 9, 2005

Paul Formosa, Treasurer/CEO
South San Francisco Scavenger Company
500 East Jamie Court
South San Francisco, California 94080

AND

Barry Nagel, City Manager
City of South San Francisco
City Hall
400 Grand Avenue
South San Francisco, California 94080

AND

Richard Haskins
114 South Maple Avenue
South San Francisco, California 94080

AND

Arthur Lee Haskins
114 South Maple Avenue
South San Francisco, California 94080

SUBJECT: Pedestrian Bridge Connection from the South San Francisco Scavenger Company, Over the San Bruno Channel Owned by the Haskins, to the Former Fuller-O'Brien Site (now Slough Estates USA) (BCDC Permit Files 22-98, M02-36, and Pre-Application File for San Bruno Channel)

Gentlemen:

BCDC Permit No. 22-98 (attached) requires that a pedestrian bridge be constructed from the South San Francisco Scavenger Company over the San Bruno Channel owned by the Haskins, to the former Fuller-O'Brien site (now Slough Estates USA). The permit requires construction of this bridge at the time the Slough Estates site is developed. The Slough Estates site is currently being developed under BCDC Permit No. M02-36. Jon Bergschneider, Vice President of Development with Slough Estates USA, Inc., currently believes that construction of the structures and improvements to be built next to the San Bruno Channel will commence in 2008. In addition, we understand that remediation of the San Bruno Channel, owned by the Haskins, is required by the Regional Water Quality Control Board (RWQCB) and that little progress has been made toward commencing this remediation over the last several years (see attached letter from the RWQCB).

In an effort to ensure that the pedestrian bridge is constructed at the same time the Slough Estates site is developed in 2008, BCDC staff would like to notify all parties involved of the need to commence planning for construction of the bridge. We believe this planning should involve the completion of, or at least the consideration of, remediation of the tidal inlet. Construction of the pedestrian bridge without having completed the required remediation of the tidal inlet would likely impact the cost and method of remediation options, simply because the bridge would be constructed over the remediation site and may impede remediation efforts.

In regard to the pedestrian bridge, Permit No. 22-98 states the following:

> **Phase III Public Access Improvements.** At such time that the Fuller-O'Brien site is further improved or redeveloped and public access is provided along the shoreline, the permittees shall construct one of the following bridge options to connect the MRF/TS [Materials Recovery and Transfer Station] site to the Fuller-O'Brien site, as generally shown on Exhibits A and B [see attached]. The specific bridge option shall be selected by or on behalf of the Commission depending on the design and siting of public access at the Fuller-O'Brien site, pursuant to Special Condition II-A [plan review condition]:
>
> a. **Marsh Bridge.** A 580-square-foot bridge over the existing marsh and tidal inlet [San Bruno Channel], with a ten-foot-wide asphalt connector path from the picnic area to the bridge; or
>
> b. **Shoreline Bridge.** A 720-square-foot bridge over the sand spit at the entrance of the tidal inlet [San Bruno Channel], with a ten-foot-wide asphalt connector path from the picnic area to the bridge.
>
> The bridge and public access corridor connecting the picnic area to the bridge shall be permanently dedicated pursuant to Special Condition II-B-1 through II-B-3 and shall be maintained pursuant to Special Condition II-B-8.

BCDC Permit No. M02-36, issued to Slough Estates USA, Inc., requires that space be provided on its property for a bridge landing that will accommodate one of the two potential bridge alignments, as specified in BCDC Permit No. 22-98. Slough is also required to ensure that the public access trail on its property is aligned with the constructed bridge landing.

In conclusion, as the deadline to commence construction of the pedestrian bridge approaches, we believe it is crucial that all parties begin planning for construction of the bridge and that the remediation of the San Bruno Channel be completed. If construction of the bridge is delayed, the permitees, South San Francisco Scavenger Company, the City of South San Francisco, Arthur Haskins, and Richard Haskins, could be found to be in non-compliance with BCDC Permit No. 22-98 and accrue substantial civil penalties.

We are happy to help in any way to ensure that there is communication between all parties and that the pedestrian bridge is completed on time. If you should have any questions or concerns, please feel free to contact me at (415) 352-3618 or at andreag@bcdc.ca.gov.

Sincerely,

ANDREA M. GAUT
Coastal Program Analyst

Enc.

AMG/mm

cc: Slough Estates USA, Inc.; Attn: Jon Bergschneider
City of South San Francisco; Attn: Mike Lappin and Tom Sparks
San Francisco Bay Regional Water Quality Control Board; Attn: Michelle Fox
Association of Bay Area Governments, Bay Trail; Attn: Laura Thompson
EnviroAssets, Inc.; Attn: Michael Harrison
Cherokee Environmental; Attn: Mark Luongo

APPENDIX B

Delineation of Jurisdictional Wetlands and Waters of the United States,

Wetlands Research Associates, Inc., June 2001

Delineation of Jurisdictional Wetlands and Waters of the United States

Section 404 of the Clean Water Act
and Section 10 of the Rivers and Harbors Act

BRITANNIA EAST GRAND AVENUE PARCEL
SOUTH SAN FRANCISCO, CALIFORNIA

Slough SSF LLC c/o
Slough Estates USA Inc.
33 West Monroe Street
Suite 2000
Chicago, IL 60603
Contact: William Rogalla

Prepared by:
Wetlands Research Associates, Inc.
2169 East Francisco Blvd., Suite G
San Rafael, CA 94901
Contact: Michael Josselyn, PhD
Telephone: (415) 454-8868

March 2002

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1.0 INTRODUCTION

This report delineates waters and wetlands subject to federal jurisdiction under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act at the Britannia East Grand Avenue parcel ("Study Area). The Study Area is located south of Point San Bruno, near the end of East Grand Avenue, in the City of South San Francisco, San Mateo County, California (Figure 1).

During February and June 2001, Wetlands Research Associates, Inc. (WRA) biologists conducted a Corps of Engineers jurisdictional delineation of the Study Area. Federal jurisdictional areas at the Study Area fall under two categories:

1 Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. In tidally influenced areas, this jurisdictional waters extends up to the "high tide line" (33 CFR 328.4). Areas with hydrophytic vegetation are separately defined as "wetlands"and are a subset of jurisdictional waters.

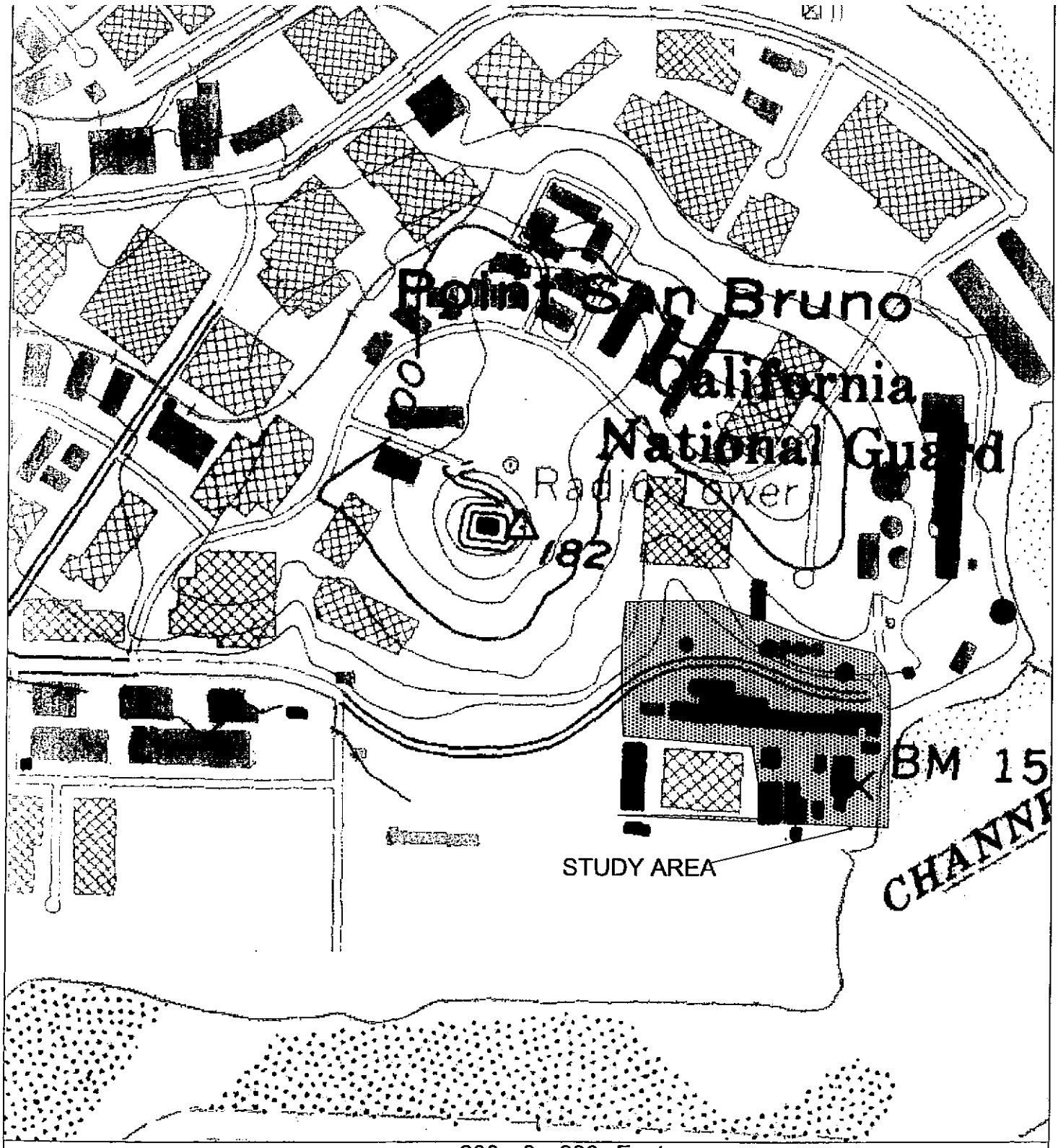
2. Army Corps of Engineers jurisdiction under Section 10 of the Rivers and Harbors Act. This jurisdiction applies to any "navigable waters of the United States" (33 U.S.C. 403). In tidally influenced areas, the upper limit of "navigable waters" has been defined as "mean high water" (FR Doc 86-25301, 329.12.b).

As stated in the federal regulations for the Clean Water Act, wetlands are defined as:

> *"Those areas that are inundated or saturated by surface or ground waters at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*
>
> (EPA, 40 CFR 230.3 and CE, 33 CFR 328.3)

2.0 STUDY AREA DESCRIPTION

Site Setting: The Britannia East Grand (Fuller O'Brien) Study Area covers approximately 27 acres at the eastern end of East Grand in a commercial/industrial area of South San Francisco. The site is relatively flat and consists of man-made surfaces composed of fill or excavated materials. The northern boundary of the site consists of a fillslope and natural slopes of Point San Bruno. The eastern boundary consists of fill and rip-rap along San Francisco Bay. The southeast corner of the site contains a tidal salt marsh which has formed in an area that was formerly mudflat. The remainder of the southern boundary to the west consists of fill material. Tidal and non-tidal wetlands occur off-site to the south of the southern boundary.



200 0 200 Feet

SCALE: 1:15,000

Figure 1

PURPOSE: Wetland Delineatioin DATUM: NGVD USGS QUADRANGLE: San Francisco South 1993 7.5 minute series	VICINITY MAP Slough SSF LLC c/o Slough Estates USA Inc. 33 West Monroe Street Suite 2000 Chicago, IL 60603	LOCATION: South San Francisco, near the end of East Grand Avenue COUNTY: Santa Mateo Application by: Slough Estates USA Inc. Sheet: 1 of 1 DATE: June 2001

Site History and Regulatory Status:

Most of the property south of East Grand Avenue is fill placed in the bay prior to 1956 (Nichols and Wright 1971). Review of aerial photos of the Study Area from 1972 to 1993 indicate that the site was developed before 1972. The hillside in the northeast corner of the property contains a few native plant species and appears to have never been graded or disturbed.

Prior to 1972, a valley on the property north of the site was filled to provide additional industrial land for the expansion of the industrial facility, north of the site. Placement of the fill materials in the valley by the landowner north of the property has resulted in the concentration of surface water along the fill/bedrock interface. The portion of the Britannia East Grand property south of the fill-slope appears dry in photos from the 1970's. Grading in this area prior to 1981 appears to have daylighted groundwater creating a wet area at the base of the slope. This wet area of the site was adjacent to a previous tank installation and was not regraded for drainage.

The remainder of the parcel was occupied by commercial or industrial facilities until 1985. Between 1985 and 1991 several buildings along the east shoreline and a tank facility in the northeast portion of the site were removed. Currently the site is occupied by several large industrial buildings in the southwest portion of the site.

The former Fuller O'Brien site has undergone numerous phases of subsurface investigation and remediation to address the environmental conditions caused by paint and varnish manufacturing at the site. The investigation work was initiated in 1983 and has been conducted under the direction of the United States Environmental Protection Agency.

An approved remedial action plan for the site was implemented in 1999 and 2000. It consisted of removal of soil from the southeastern corner of the site (where waste ponds had been located) and along the eastern edge (where soil contacted San Francisco Bay). All other areas of the site where soil contains chemicals above approved clean up levels are capped (either under buildings or under new asphalt pavement). The site has a deed restriction that limits future site use to commercial/industrial uses and requires all soil and groundwater from beneath the capped area to be handled in accordance with an approved Site Management Plan.

Stormwater runoff for the southern portion of the site during completion of the remedial program has been contained in a temporary sediment basins and then pumped to East Grand Avenue after passing through a sediment filtration system.

Following implementation of the remedial plan for soil at the site, regulatory oversight was transferred to the California Department of Toxic Substances Control in 2000.

3.0 METHODS

3.1 Section 404 Waters of the U.S. including Wetlands

3.1.1 Tidal Areas

Under Section 404 of the Clean Water Act, Corps jurisdiction in tidal areas extends up to the "high tide line" ("HTL") (33 CFR 328.4). Waters within the Study Area therefore include all tidally influenced areas, both vegetated and unvegetated, up to the HTL. Potential jurisdictional wetlands within the Study Area include areas with hydrophytic vegetation up to the HTL.

The HTL in the Study Area was calculated from a reference point, determined by the Corps to be +7.2 feet mean lower low water datum (MLLW) at the Golden Gate (Presidio tide station). The high tide line was then calculated for the Study Area using a correction factor calculated as the difference between MHHW at the Presidio and South San Francisco, obtained from Bay Conservation and Development Commission (BCDC) San Francisco Tidal Datum Information, 1994, which are derived from National Ocean Service, National Oceanic & Atmospheric Administration, tidal datum sheets.

3.1.2 Non-tidal Areas

The non-tidal portion of the Study Area was evaluated for the presence or absence of indicators of three wetland parameters described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory, 1987). The three parameters used to determine the presence of wetlands are: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual (1987):

> *"....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."*

Prior to conducting field surveys, the Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California (U.S.D.A. Soil Conservation Service 1991) and the National Wetlands Inventory map (U.S. Fish and Wildlife Service 1985; South San Francisco quadrangle) were reviewed. Aerial photographs taken 5/10/72, 5/12/75, 6/2/77, 5/30/79, 6/19/81, 6/6/83, 10/15/85, 7/2/91, and 8/27/93 were obtained from Pacific Aerial Surveys.

On February 15, 2001 and June 12, 13 and 25, 2001, a routine level study of vegetation, soils, and hydrology indicators was conducted. Wetland indicators were investigated at sample plots throughout the Study Area at locations representative of areas with wetland characteristics or in adjacent uplands. The results were recorded on standard 1987 *Corps Manual* data sheets (Appendix A).

The hydrophytic vegetation, hydric soils, and wetland hydrology indicators used to make wetland determinations are summarized below.

VEGETATION

Dominant plant species observed were assigned a wetland indicator status according to the U.S. Fish and Wildlife Service, List of Plant Species that Occur in Wetlands (Reed 1988). This wetland plant classification system is based on the expected frequency of occurrence of plants in wetlands.

Indicator Status	Description	Frequency of Occurrence
OBL	Obligate, always found in wetlands	> 99%
FACW	Facultative wetland, usually found in wetlands	67-99%
FAC	Facultative, equal occurrence in wetland or non-wetlands	34-66%
FACU	Facultative upland, usually found in non-wetlands	1-33%
UPL / NL	Upland / Not Listed, not found in wetlands	<1%

When greater than 50 percent of the dominant plant species have an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation is present. Dominant herbaceous plant species are those with greater than 20% relative areal cover.

SOILS

The Natural Resource Conservation Service defines a hydric soil as:

> *"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."*
>
> (Federal Register July 13, 1994, US Department of Agriculture, Natural Resource Conservation Service.)

Soils formed over long periods of time under wetland (anaerobic) conditions sometimes possess characteristics that indicate that they meet the definition of hydric soils. Recently filled or excavated areas generally do not have hydric soil indicators as they have not had time to develop (Corps of Engineers Manual 1987).

According to the Technical Notes issued by the National Technical Committee for Hydric Soils (NTCHS), the definition of hydric soils must be met for a soil to be considered hydric:

> *Several terms are frequently used to describe hydric soil delineation methodology. These are: Hydric Soil Definition, Hydric Soil Criteria, Hydric Soil Lists, Hydric Soil*

Indicators, and, lastly, hydric soils. According to the deliberations of the National Technical Committee for Hydric Soils (NTCHS), each of these terms has a specific meaning and use. All hydric soils must satisfy requirements of the Hydric Soil Definition. Hydric Soil Criteria are used to generate Hydric Soil Lists. Hydric Soil Lists contain a listing of soils that have a probability of being hydric. Hydric Soil Indicators are primarily morphological indicators used for field identification of hydric soils. Hydric Soil Criteria and Hydric Soil Lists are primarily used as offsite assessment tools. A hydric soil is a soil that meets the Hydric Soil Definition; presence of one (or more) of the Hydric Soil Indicators is evidence that the definition has been met.

NTCHS Technical Note 1 (1998)

The Corps Manual provides guidance on the indicators required to determine the presence of a hydric soil. As stated in the Corps' December 12, 1995 guidance letter "NRCS Field Indicators of Hydric Soils" indicators contained in the Field Indicators of Hydric Soils of the United States, Version 4.0, (USDA, 1998) which are correlated to indicators in the 1987 Corps Manual or were developed for use in Problem Areas (e.g. Seasonal wetlands) were used as an additional tool for identification of hydric soils.

Soil profiles were described including color, redoximorphic features, and texture. Soil color was determined using a Munsell soil color chart (GretagMacbeth, 2000).

HYDROLOGY

Wetland hydrology is a term which encompasses hydrologic characteristics of areas that are periodically inundated or saturated to the surface at some time during the growing season. Recorded data can be used when available to determine wetland hydrology. In California, recorded data which shows inundation or saturation to the surface for a minimum of five percent of the growing season (18 days in areas with a 365 growing season) is considered evidence of wetland hydrology.

When studies are conducted at a time of year when surface water, ground water or saturated soils can not be observed, evidence of wetland hydrology is based on observation of the hydrologic indicators described in the 1987 *Corps Manual.* Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels and algal mats. If indirect or secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology. Depressions and topographic low areas were examined for these hydrological indicators.

Some areas may demonstrate hydrologic characteristics, but not be considered jurisdictional wetlands. Included in this category are some man-induced wetlands, which are areas that have developed at least some characteristics of naturally occurring wetlands due to either intentional or

incidental human activities. Examples of man-induced wetlands include irrigated wetlands, impoundments, or drainage ditches constructed in uplands, temporary sediment basins on construction sites, and treatment ponds and lagoons.

In addition, this study evaluated the presence of any "waters of the United States" other than wetlands potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers and streams (including intermittent streams). Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHW) which is defined as:

> *The term "ordinary high water mark" means that a line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*
>
> Federal Register Vol. 51, No. 219, Part 328.3 (d). November 13, 1986.

3.2 Section 10 Waters

Section 10 of the Rivers and Harbors Act (1899) applies to tidal areas up to mean high water (MHW), and includes tidal areas currently subject to tidal influence as well as historic tidal areas currently behind levees that historically were below MHW. Data from the nearest tidal monitoring station (Pier 22½) was used as MHW elevation.

Prior to conducting field surveys, the Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California (U.S.D.A. Soil Conservation Service 1991) and the National Wetlands Inventory map (U.S. Fish and Wildlife Service 1985; South San Francisco quadrangle) were reviewed. Aerial photographs taken May 30, 1989, August 27, 1993, September 7, 1995, August 5, 1997, and January 21, 1998 were also studied.

4.0 RESULTS

4.1 Section 404 Waters of the U.S. including Wetlands

4.1.1 Tidal Areas

Calculations used in determining the HTL are contained in Appendix A. The calculated HTL for the Study Area was determined to be +5.09 feet, NGVD. Table 1 contains elevations of the HTL and several other tide heights, along with conversions of the these heights to mean lower low water (MLLW)

Section 404 waters include all areas, both vegetated and unvegetated, that occur below 5.09 feet NGVD.

Within the Study Area, tidal wetlands are areas of hydrophytic vegetation that occur below 5.09 feet NGVD. Tidal wetlands occur within the Study Area along the southeastern boundary. Hydrophytic vegetation in tidal wetlands was dominated by smooth cordgrass (*Spartina alterniflora*) (Appendix C, Plot 1).

Spartina alterniflora is an invasive non-native species that grows at both higher and lower tidal elevation than the native California cordgrass (*Spartina foliosa*). It is displacing native species within saltmarshes and invading mudflats which are important to migratory shorebirds.

The eastern boundary of the Study Area did not contain hydrophytic vegetation below the HTL.

The total area of tidal waters, including wetlands, within the Britannia East Grand Avenue Study Area is 0.60 acres (Appendix B, Table 2).

4.1.2 Non-tidal Areas

One man-made freshwater wetland occurs on the Britannia East Grand Avenue Study Area. This freshwater wetland within the Study Area occurs north of East Grand Avenue. This wetland extends from the base of the fill slope along the north property boundary south to East Grand Avenue. This area has apparently formed where grading at the base of the fill slope, which aerial photos indicate took place prior to 1981, has exposed groundwater. The portion of the wetland at the base of the fill slope was ponded during the field visit on June 12, 2001. During the same field visit, water was observed flowing from the south end of the wetland at the end of East Grand Avenue to the west along the roadside to the stormdrain at the culdesac on East Grand Avenue. The storm drain flows underground approximately 800 feet along the west boundary of the property and discharges via a storm water outlet into a tributary channel connected to a tidal wetland adjacent to San Francisco Bay.

Red willow (*Salix laevigata*, FACW+) dominates the portion of this wetland at the base of fill slope (Plot 6) and along East Grand Avenue. Narrow-leaved cattail (*Typha angustifolia*, OBL) dominates the main portion of the wetland (Plot 3) and the channel leading to East Grand Avenue. The main portion of the wetland and the channel have a hummocky surface as a result of recent site maintenance activities. Algal mats where observed in several areas of the wetland. Soils were alluvial deposits with a dense accumulation of roots in the upper 6 inches. Hydric soil conditions were indicated by a dense concentration of oxidized iron and manganese and reduced iron deposits within the soil matrix. Oxidized iron (rhizospheres) was observed on root pores indicating recent anaerobic conditions. This wetland covers 0.32 acre.

Historic photographs show that the wetland didn't exist prior to 1981, but was roughly in its current condition by 1985 (Appendix D). Based on the length of culvert separating the wetland from the

outlet near the bay, this wetland may be considered isolated and therefore excluded from Corps jurisdiction. In addition, recent water quality data of the water entering this wetland suggests that the primary water source may be a leak from a potable water source (Table 3). The water entering the wetland has high levels of fluoride and chlorine, both of which are added to domestic water sources. Furthermore, the total dissolved solids is low indicating a water treatment process. Though the levels of fluoride and chlorine are lower than those recorded from the spigot located on the hill above the wetland, they are significant compared to baseline levels expected from natural groundwater sources.

No jurisdictional streams or other unvegetated waters occur within the Study Area. A temporary sediment basins which is excluded from jurisdiction occurs in the southeast portion of the Study Area (Appendix B).

4.2 Section 10 Waters

Mean high water for South San Francisco was determined to be +3.10 feet NGVD. Army Corps of Engineers Section 10 jurisdiction includes tidal areas below Mean High Water (MHW), as well as unfilled areas currently behind levees that historically were below MHW. Potential Section 10 jurisdictional areas within the Britannia East Grand Avenue property total 0.51 acres (Appendix B, Table 2). There are no unfilled former tidal channels or other areas that would be considered jurisdictional under Section 10 of the Rivers and Harbors Act.

5.0 REFERENCES

Bay Conservation and Development Commission (BCDC). 1994. San Francisco Tidal Datum Information.

Nichols, D.R. and N.A. Wright. 1971. Preliminary map of historic margins of marshland, San Francisco Bay, California. Map scale 1:125,000.

Table 1. Tidal Elevations for South San Francisco

Tide Height	Abbreviation	MLLW (feet)	NGVD (feet)
Mean Lower Low Water	MLLW	0	-3.33
Mean Low Water	MLW	1.13	-2.20
Mean Sea Level	MSL	3.78	0.45
Mean High Water (BCDC jurisdictional limit when marsh plain is absent, COE jurisdictional limit under Section 10 of the River and Harbors Act)	MHW	6.43	3.10
Mean Higher High Water	MHHW	7.05	3.72
Calculated High Tide Line* (COE jurisdictional limit under Section 404 of the Clean Water Act)	HTL	8.42	5.09
Highest Observed Tide 12/20/76	HOT	8.57	5.24
5 feet above MSL (BCDC jurisdictional limit when marsh plain is present)	MSL + 5ft.	8.78	5.45
* see Appendix A for calculations			

Table 2. Summary of Potential Jurisdictional Wetlands and Waters within the Britannia East Grand Avenue Study Area (acres)

Area (acres)	Section 404 Non Tidal, Isolated Wetlands	Section 404 Tidal Waters (including wetlands)	Section 10 Waters
Britannia East Grand Property	0.32 acre	0.60 acre	0.51 acre

Table 3. Water quality data (Feb 2002) of water entering the man-made freshwater wetland compared to domestic water source. Concentrations of fluoride and chloride are usually significantly lower than 0.01 mg/l to undetectable in natural water.

SAMPLE ID	**CONCENTRATION IN MG/L**			
Bottom of Hill	Fluoride	Cl-	TDS	Hardness
Leak at Road	0.29	0.71	570	440
Base of Hill 1	0.31	0.12	580	390
Base of Hill 2	0.31	0.055	560	400
Top of Hill				
Spigot	0.96	0.34	120	79

Appendix A
Corps of Engineers Jurisdictional High Tide Line Calculations for South San Francisco

- High Tide Line at Golden Gate (Presidio tide station)
  = 7.2 feet MLLW

- High tide correction for South San Francisco tidal bench mark
  = 7.05 - 5.83 = 1.22 feet*

- Calculated High Tide Line in South San Francisco, MLLW datum
  = 7.2 + 1.22
  = 8.42 feet MLLW

- 0 feet NGVD at South San Francisco
  = 3.33 feet MLLW

- Calculated High Tide Line in South San Francisco NGVD datum
  = 8.42 - 3.33
  = 5.09 feet NGVD

* calculated as the difference between MHHW at South San Francisco and Presidio, obtained from Bay Conservation and Development Commission (BCDC) San Francisco Tidal Datum Information, 1994, which are derived from National Ocean Service, National Oceanic & Atmospheric Administration, tidal datum sheets.

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BRITANNIA
EAST GRAND
SOUTH SAN FRANCISCO

STORM DRAIN INLET

STORM DRAIN OUTLET

100' BCDC SHORELINE BAND

100' BCDC SHORELINE BAND

BAY JURISDICTION BOUNDARY LINE BASED EL 3.1' NGVD

TIDAL MARSH BOUNDARY LINE EL. 5.45 NGVD

LIMIT OF CORD GRASS

TIDAL MARSH BOUNDARY

DENSE GRASS

DENSE GRASS

DENSE GRASS

DIRT PILE

NOTE:
BCDC JURISDICTIONAL BOUNDARY AND SHORELINE BAND BASED ON WETLANDS RESEARCH & ASSOCIATES INFOMATION THAT WAS SUREVEYED BY WILSEY HAM ON FEBRUARY 23, 2001.

LEGEND

- Study Area Boundary
- 100' BCDC Shoreline Boundary
- ACOE High Tide Line (5.09')
- ACOE Section 10 Line (3.10')
- ACOE Potential Jursdictional Wetland
- Settling Basin
- Storm Drain
- Sample Plot

50 0 50 100 150 FEET
SCALE: 1" = 50'

Date	Issues	No.
2/21/2002	Draft	

PROJECT #11020
DRAWN BY: F.L.
ORIGINAL DRAWING SIZE: 24 X 36

SHEET #

SCALE: 1" = 50'

FILENAME: 11020\dwg\wra\Brittania.dwg
BASEMAP: Wilsey Ham, Engineering & Surveying, Inc.
DES Architects & Engineers, Inc.

APPENDIX C
Semivolatile Organic Compound Summaries

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-1	HSB-1B	HSB-1B	HSB-1B	HSB-2	HSB-2	HSB-2	HSB-3	HSB-3B	HSB-3B	HSB-3B
Depth (feet bgs)	1	1	3	5	1	3	5	1	1	3	5
Date Collected	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (b) fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-4	HSB-4	HSB-4	HSB-5	HSB-5	HSB-5	HSB-6	HSB-6	HSB-6	HSB-7	HSB-7
Depth (feet bgs)	1	3	5	1	3	5	1	3	5	1	3
Date Collected	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	**1.3**	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.2**	<1.0	<1.0	<1.0	<1.0
Anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.5**	**1.0**	<1.0	<1.0	<1.0
Pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.6**	<1.0	<1.0	<1.0	<1.0
Benzo (a) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (b) fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-7	HSB-8	HSB-8	HSB-8	HSB-8	HSB-9	HSB-9	HSB-9	HSB-10	HSB-10	HSB-10
Depth (feet bgs)	5	5	10	15	18	1	3	5	5	10	15
Date Collected	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0	**2.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	<1.0	**7.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	<1.0	**5.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	<1.0	<1.0	<1.0	<1.0	**6.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	<1.0	<1.0	<1.0	<1.0	**6.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	<1.0	<1.0	<1.0	<1.0	**14.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	<1.0	<1.0	<1.0	<1.0	**18.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) anthracene	<1.0	<1.0	<1.0	<1.0	**6.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	**29.0**	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	<1.0	<1.0	**7.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (b) fluoranthene	<1.0	<1.0	<1.0	<1.0	**3.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	<1.0	<1.0	**4.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) pyrene	<1.0	<1.0	<1.0	<1.0	**5.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-7	HSB-8	HSB-8	HSB-8	HSB-8	HSB-9	HSB-9	HSB-9	HSB-10	HSB-10	HSB-10
Depth (feet bgs)	5	5	10	15	18	1	3	5	5	10	15
Date Collected	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99	09/16/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0	**2.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	<1.0	**7.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	<1.0	**5.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	<1.0	<1.0	<1.0	<1.0	**6.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	<1.0	<1.0	<1.0	<1.0	**6.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	<1.0	<1.0	<1.0	<1.0	**14.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	<1.0	<1.0	<1.0	<1.0	**18.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) anthracene	<1.0	<1.0	<1.0	<1.0	**6.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	**29.0**	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	<1.0	<1.0	**7.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (b) fluoranthene	<1.0	<1.0	<1.0	<1.0	**3.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	<1.0	<1.0	**4.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (a) pyrene	<1.0	<1.0	<1.0	<1.0	**5.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-10	HSB-11	HSB-11	HSB-11	HSB-12	HSB-12	HSB-12	HSB-13	HSB-13	HSB-13	HSB-14
Depth (feet bgs)	18	1	3	5	1	3	5	1	3	5	1
Date Collected	09/16/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.6**	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	**1.4**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	<1.0	<1.0	**6.2**	**2.6**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.3**	<1.0
Anthracene	<1.0	<1.0	**2.3**	**1.7**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	<1.0	<1.0	**17.0**	**5.6**	<1.0	<1.0	<1.0	<1.0	**1.1**	**3.7**	<1.0
Pyrene	<1.0	<1.0	**20.0**	**12.0**	<1.0	<1.0	<1.0	<1.0	**1.1**	**3.6**	<1.0
Benzo (a) anthracene	<1.0	<1.0	**8.3**	**4.0**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.3**	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	**11.0**	**4.4**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0
Benzo (b) fluoranthene	<1.0	<1.0	**9.7**	**3.4**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.5**	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	**8.9**	**4.4**	<1.0	<1.0	<1.0	<1.0	**1.0**	**1.4**	<1.0
Benzo (a) pyrene	<1.0	<1.0	**14.0**	**4.7**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.4**	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	**1.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	**6.7**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4
SUMMARY OF DETECTED SVOCS
SOIL SAMPLES
HASKINS PROPERTY
SOUTH SAN FRANCISCO, CALIFORNIA
in milligrams per kilogram (mg/kg)

Sample Location	HSB-14	HSB-14	CS	CS	CS	SS	HSB-22	HSB-15[2]	HSB-16[2]	HSB-17[2]
Depth (feet bgs)	3	5	1	3	5	0	Field Blank[1]	3	3	3
Date Collected	09/15/99	09/15/99	09/15/99	09/15/99	09/15/99	09/16/99	09/16/99	09/15/99	09/15/99	09/15/99
Isophorone	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	**130.0**	<1.0	<1.0	<1.0	**130.0**	<1.0	<1.0
2-Methylnaphthalene	<1.0	<1.0	<1.0	**32.0**	<1.0	<1.0	<1.0	**36.0**	<1.0	<1.0
1-Methylnaphthalene	<1.0	<1.0	<1.0	**16.0**	<1.0	<1.0	<1.0	**18.0**	<1.0	<1.0
Acenaphthene	<1.0	<1.0	<1.0	**31.0**	<1.0	<1.0	<1.0	**38.0**	<1.0	<1.0
Dibenzofuran	<1.0	<1.0	<1.0	**24.0**	<1.0	<1.0	<1.0	**31.0**	<1.0	<1.0
Fluorene	<1.0	<1.0	<1.0	**25.0**	<1.0	<1.0	<1.0	**33.0**	<1.0	<1.0
Phenanthrene	<1.0	<1.0	<1.0	**89.0**	<1.0	<1.0	<1.0	**100.0**	<1.0	<1.0
Anthracene	<1.0	<1.0	<1.0	**31.0**	<1.0	<1.0	<1.0	**41.0**	<1.0	<1.0
Di-n-Butyl phthalate	<1.0	**2.1**	**3.6**	<1.0	<1.0	**2.6**	<1.0	<1.0	<1.0	<1.0
Fluoranthene	**1.2**	<1.0	<1.0	**49.0**	<1.0	<1.0	<1.0	**57.0**	<1.0	<1.0
Pyrene	**1.3**	<1.0	<1.0	**56.0**	<1.0	<1.0	<1.0	**56.0**	<1.0	<1.0
Benzo (a) anthracene	<1.0	<1.0	<1.0	**18.0**	<1.0	<1.0	<1.0	**23.0**	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	<1.0	<1.0	<1.0	**22.0**	<1.0	<1.0	<1.0	**24.0**	<1.0	<1.0
Benzo (b) fluoranthene	**1.0**	<1.0	<1.0	**8.0**	<1.0	<1.0	<1.0	**10.0**	<1.0	<1.0
Benzo (k) fluoranthene	<1.0	<1.0	<1.0	**8.9**	<1.0	<1.0	<1.0	**13.0**	<1.0	<1.0
Benzo (a) pyrene	<1.0	<1.0	<1.0	**11.0**	<1.0	<1.0	<1.0	**14.0**	<1.0	<1.0
Indeno (1,2,3-c,d) Pyrene	<1.0	<1.0	<1.0	**3.1**	<1.0	<1.0	<1.0	**2.4**	<1.0	<1.0
Dibenz (a,h) anthracene	<1.0	<1.0	<1.0	**1.8**	<1.0	<1.0	<1.0	**1.5**	<1.0	<1.0
Benzo (g.h,I) perylene	<1.0	<1.0	<1.0	**2.5**	<1.0	<1.0	<1.0	**2.0**	<1.0	<1.0

1: Field Blank consisted of Play Ground Sand purchased from Home Depot.
2: These soil samples represent the individual aliquots that went into making the composite (CS) at 3 ft bgs.

APPENDIX D

San Bruno Channel Work Plan,

H.T. Harvey & Associates, August 24, 2006

SAN BRUNO CHANNEL WORK PLAN

Prepared by

H. T. Harvey & Associates

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August 24, 2006 Project No. 1810-03

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INTRODUCTION

The San Bruno Channel Workplan project site is located at 450 E. Grand Avenue in South San Francisco, CA (Figure 1). The site consists of approximately two acres of fill comprising the Former San Bruno Channel (Former Channel), which extends from San Francisco Bay westward forming a narrow drainage (Figure 2), and is located within a highly industrialized area on the western shore of San Francisco Bay. The project site is bounded on the east by San Francisco Bay, to the south by the former Haskins Landfill, to the west by the Yellow Freight Company and to the north by the former Fuller-O'Brien facility (currently under development by the property owner, Slough Estates). A City of South San Francisco stormwater outfall discharges to the western-most portion of the property. Previous environmental investigations (The Mark Group 1989; Risk-Based Decisions 2000) indicate that elevated concentrations of heavy metals (including elevated concentrations of lead) and semivolatile organic compounds (SVOCs) and are found in the site's soils and sediments, and that these concentrations extend to an indeterminate depth. Fill on the site also includes construction debris.

The soils of the site consist mainly of fill, ranging in size from riprap to fine grain materials. A portion of the site is muted intertidal. The muted tidal portion of the property is mostly vegetated by tidal salt marsh plants, transitioning quickly to brackish marsh and then to freshwater species at the upward end of the elevational gradient. Dominant plant species include cordgrass (likely *Spartina alterniflora* [hybrid]), pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), alkali bulrush (*Scirpus maritimus*), cattails (*Typha* sp.) and arroyo willow (*Salix lasiolepsis*). Several non-native invasive species also occur on the site, including non-native cordgrass in the marsh areas adjacent to the Bay, as well as fennel (*Foeniculum vulgare*) and pampas grass (*Cortaderia jubata*) on the slopes adjacent to the channel.

This Workplan presents a conceptual plan to mitigate for wetland impacts for the remediation of lead contaminated soils and respond to previous concerns of the San Francisco Bay Conservation and Development Commission (BCDC) that the project minimize fill at the site and create salt marsh habitat.

Map Copyrighted September 1996 by the California State Automobile Association, reproduced by permission.

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

San Bruno Channel Workplan: Site/Vicinity Map

File No. **1810-03**	Date **8/28/06**	Figure **1**

BCDC Shoreline Band

Non-native Species Eradication and Peripheral Halophyte Planting Area

Partial Removal of Blockage to Tidal Influence

Willow Planting Area

Upland Transition Zone

SAN FRANCISCO BAY

N

SS HH1 H1 GH1 G1 G2 G3 F1 F2 E1 E2 E3 E4 DE1 D1 D2 D3 D4 D5 C1 C2 C3 BC1 BC2 B1 B2 B3 B4 B5 A1 A2 A3 A4 A5 A6 A7

HSB-01 HSB-01B HSB-02 HSB-03 HSB-03B HSB-04 HSB-05 HSB-06 HSB-07 HSB-08 HSB-09 HSB-10 HSB-11 HSB-12 HSB-13 HSB-14 HSB-15 HSB-16 HSB-17

Legend

- Property Boundary
- Wetland extents
- HSB-16 — Sample location (lead <200 mg/Kg)
- HSB-17 — Sample location (lead >200 mg/Kg)
- Proposed Bay Trail alignment
- Fill Area
- Remediation Area
- Wetland Creation Area
- Willow Planting Area
- Upland Transition Zone
- Non-native Species Eradication and Peripheral Halophyte Planting Area
- Upland Trees for Screening

0 40 80 160

Scale in Feet

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

San Bruno Channel Workplan: Mitigation Design

File No. **1810-03** | Date **8/28/06** | Figure **2**

PROJECT IMPACTS

The conceptual plan for the remediation activity was approved by the California Regional Water Quality Control Board (RWQCB) in a letter dated August 22, 2000. A revised version of the plan, incorporating several mitigation options requested by the RWQCB, was submitted on October 3, 2000 Workplan (Henshaw Associates, Inc. 2000). However, the BCDC, in a letter dated July 22, 2002, stated that, "fill in the marsh should be avoided." The BCDC further stated that "the Workplan be modified to minimize fill in the Commission's marsh jurisdiction." Subsequently, the RWQCB submitted a letter on May 14, 2004 asking the project proponent to submit a revised Workplan that addresses BCDC's concerns. The Workplan has been modified to address those concerns, and this report is the proposed mitigation plan for the revised Workplan.

A City of South San Francisco 30-inch diameter storm sewer outfall is located on the western boundary of the project site. This storm sewer drains the eastern area of East Grand Avenue and discharges to the western boundary of the project site. The previous Workplan, proposed an extension of this outfall for a distance of 630 feet; this Workplan proposes decreasing the length of the outfall extension to approximately 260 feet to minimize impacts to jurisdictional habitat.

The current Workplan proposes a comprehensive strategy to mitigate the impacted sediments identified within the Former Channel by:

- Removing and replacing the top three feet of impacted sediments within approximately 0.34 acres of impacted wetlands;
- Creating approximately 0.26 acres of new wetlands adjacent to the remediated area;
- Moving excavated sediments and grading spoils onto designated portions of the property (including approximately 0.11 acres of existing impacted wetland) and capping them with approximately two feet of clean fill; and
- Revegetating the disturbed areas with native flora.

This activity will result in impacts to 0.11 acres of U. S. Army Corps of Engineer (USACE) jurisdictional habitat and BCDC non-tidal wetland habitat (Figure 2).

Although the pickleweed and cordgrass-dominated areas adjacent to the impact site are typically thought to be habitat for the Federally-endangered salt marsh harvest mouse and California Clapper Rail, we do not feel that this particular site is likely to support either species. The small size of the habitat, and the fact that it is not fully tidal and isolated from known populations of these species make it unlikely that impacts to either of these species would occur as a result of the project.

MITIGATION PLAN

In response to BCDC comments, this Workplan has been revised to minimize fill within BCDC jurisdictional areas and includes wetlands remediation and creation of new wetlands adjacent to the remediated area.

The current proposed project will result in impacts to 0.11 acres of jurisdictional wetland habitat (USACE and BCDC). This revision also includes shortening the culvert to the extent possible, and minimizing the need for fill. This will result in reduced fill in jurisdictional habitat proposed in the previously proposed Workplan from 0.22 acres to 0.11 acres, representing a 50% decrease in proposed fill. The proposed project also includes remediation of 0.34 acres of muted tidal wetland and creation of 0.26 acres of wetland habitat (Table 1).

Table 1. San Bruno Channel Project USACE and BCDC Impact and Mitigation Area (in acres).

Impacts	Mitigation	
USACE and BCDC Jurisdictional Wetlands	Remediation of Existing Wetlands	Wetland Creation
0.11	0.34	0.26

WETLAND REMEDIATION

To minimize placing fill within BCDC jurisdiction, contaminated materials will be removed and the area will be backfilled with a minimum of three feet of clean material. Contaminated soil on 0.34 acres of tidal wetland habitat will be removed and replaced with clean fill. An additional 0.26 acres of tidal wetland habitat will also be created.

All backfill material will meet the RWQCB Sediment Screening Criteria for wetland surface and foundation material as outlined below in Table 2. This option would alleviate the potential impacts to the Bay and allow for the restoration of the reach, resulting in a net gain of uncontaminated wetland habitat. All construction activities will be coordinated to minimize impacts to the biological resources on the site.

Table 2. Sediment Screening Criteria for the Creation of Wetlands (RWQCB, May 2000).

Analyte	Wetland Surface Material (0-3 feet)	Wetland Foundation Material (3+ feet)
Lead	43.2 mg/kg	218 mg/kg
Benz(a)anthracene	412 µg/kg	1,600 µg/kg
Benz(b)floranthene	371 µg/kg	-
Dibenz(a,h)anthracene	32.7 µg/kg	260 µg/kg

WETLAND CREATION

A portion of the area just east of the outfall fill area and adjacent to the remediated wetland area will be excavated to create 0.26 acres of muted tidal marsh habitat. The south slope of the project area just below the storm sewer outfall will be over-excavated, filled with clean material

to the marsh plain elevation, and the restored area will be replanted with native salt-marsh vegetation (see Revegetation Section below).

ADDITIONAL MITIGATION

Partial Removal of Blockage to Restore Tidal Action

The berm formed by the rip-rap at the mouth of the channel currently only allows occasional spring tides into the channel. Removal of a portion of the rip-rap from the mouth of the channel will increase hydrologic connectivity to the Bay and substantially increase the wildlife functions and values of the habitats within the channel.

Eradication of Non-Native Species

Non-native cordgrass is pervasive throughout the salt marsh portions of the channel. Coordination with the San Francisco Estuary Invasive Spartina Project (ISP) (http://www.spartina.org/) will be a necessary component of this restoration. The ISP Control Plan for the San Bruno Marsh includes treatments of non-native cordgrass, which began in 2005 and will continue through 2007 (ISP 2005). Assuming that the ISP will eradicate the non-native cordgrass, follow-up treatments in multiple years will be required. Other species that should be eradicated from the slopes adjacent to the channel include: peppergrass (*Lepidium latifolium*), fennel (*Foeniculum vulgare*), pampas grass (*Cortaderia jubata*), broom (*Genista monspessulana*), and iceplant (*Carpobrotus* and *Mesembryanthemum* sp.). The removal of these species from the slopes adjacent to the wetland habitat is being proposed as part of this mitigation package.

REVEGETATION

Native Salt-Marsh Revegetation

All disturbed areas, newly graded areas, and areas of non-native eradication will be revegetated with native vegetation appropriate to the hydrologic setting. It is expected that native salt-marsh vegetation will readily colonize the restored marsh plain. However, spot plantings of peripheral halophyte species including pickleweed (*Salicornia virginica*), salt grass (*Distichlis spicata*), fleshy jaumea (*Jaumea carnosa*), alkali heath (*Frankenia salina*), and marsh gumplant (*Grindelia stricta* var. *angustifolia*) are recommended to assist with recolonization (Figure 2). The native willow grove (originally located at the base of the fill slope along the north property boundary south to East Grand Avenue) will be restored adjacent to the relocated freshwater outfall (Figure 2). Due to the presence of non-native cordgrass (*Spartina alterniflora* and its hybrids) and the high likelihood that the hybrid cordgrass species could hybridize with the native cordgrass species (*Spartina foliosa*), it is not recommended that the native cordgrass species be planted at this time. All peripheral halophyte plants should be collected from the vicinity of the project area. Plants not occurring within the vicinity should be collected from nearby salt marsh areas. Willow cuttings should be collected from willows on site prior to impact. Suggested plants and planting specifications are included in Table 3.

Table 3. San Bruno Channel Planting Specifications.

Plant Type	Common Name	Scientific Name	On-Center Spacing (m)	Container Size*
Peripheral Halophytes	pickleweed	*Salicornia virginica*	1.5	Supercell
	salt grass	*Distichlis spicata*	1.5	Treeband
	jaumea	*Jaumea carnosa*	1.5	Treeband
	alkali heath	*Frankenia salina*	1.5	Treeband
	marsh gumplant	*Grindelia stricta* var. *angustifolia*	1.8	Deepot
Outfall Willows	red willow	*Salix laevigata*	1.5	Treepot-4**
	arroyo willow	*Salix lasiolepsis*	1.5	Treepot-4**
Upland shrubs	toyon	*Heteromeles arbutifolia*	3	Treeband
	California rose	*Rosa californica*	3	Treeband
	coyote brush	*Baccharis pilularis*	3	Deepot
	big saltbush	*Atriplex lentiformis*	2.5	Deepot

* Super-cell = 1.5" x 8"
Treeband = 2.25" x 5"
Deepot = 2.5" x 10"
Treepot-4 = 4" x 14"
**Cuttings from willows to be impacted should be collected in Winter 2006-2007.

Peripheral Halophyte plantings

Peripheral halophyte plants should be grown by a native plant nursery experienced in growing the required native plant material. Nurseries typically need 12 months lead-time to contract and grow the desired plants. Peripheral halophyte plantings (treebands) will be installed by hand in holes at least 20 cm (8 inches) deep and 7-8 cm (3 inches) wide. No irrigation basins are required for these plantings. A qualified biologist should be on-site during planting to ensure the appropriate placement of these plants.

Upland transition plantings

The graded upland area will be planted with native shrubs. Shrubs should include a mix of toyon (*Heteromeles arbutifolia*), California rose (*Rosa californica*), coyote brush (*Baccharis pilularis*), and big saltbush (*Atriplex lentiformis*).

Additional landscaping will be planted adjacent to the Bay Trail to provide screening from nearby industrial activities and will include evergreen trees such as coast live oak (*Quercus agrifolia*), box elder (*Acer negundo*), Douglas fir (*Pseudotsuga menziesii*), Catalina ironwood (*Lyonothamnus floribundus* var *asplenifolius*); wax myrtle (*Myrica californica*); Deodar cedar (*Cedrus deodar*), Marina madrone (*Arbutus* x 'Marina'), or western redbud (*Cercis occidentalis*).

Willow Cuttings Installation

Red willow (*Salix laevigata*) and arroyo willow (*Salix lasiolepsis*) will be planted near the outfall. If possible, willows cuttings should be harvested from existing willow trees at the

impact site and planted in containers until needed for planting. In order to assure viability of the plantings, a biologist should supervise harvest as well as installation of cuttings. Cuttings from red and arroyo willows should be harvested and grown in the mid-winter (January-February) when the trees are dormant. Cuttings should be greenwood cuttings, 61 cm (24-inches) long, and 1¼ to 2 cm (½ to ¾ inch) in diameter. Each harvested cutting needs to be examined and those with insect damage should be discarded in order to assure planting viability.

MONITORING PLAN

A qualified restoration ecologist will monitor the site during construction, to ensure that the project remains consistent with the Workplan. Monitoring data will be collected and used to evaluate the success of the Workplan after construction. This data will provide feedback to direct any necessary maintenance or adjustments to ensure the success of the Workplan.

SUCCESS CRITERIA AND ASSOCIATED MONITORING

As required by the regulatory agencies (USACE and RWQCB), the project site will be monitored for five years. An additional delineation as defined by the U.S. Army Corps of Engineers 1987 manual (Environmental Training Laboratory 1987) will be performed in Year-3, and again in Year-5 if the required wetland acreage has not been achieved in Year-3.

Plant Survival

Plant survival monitoring for peripheral halophytes, shrubs, and willows will take place in Years 1, 2, and 3. Plant survival shall not be lower than 80%. In Year 3, at the completion of plant establishment, survival of upland plantings shall not be lower than 80%. Plant survival will be determined by field count of all installed peripheral halophytes and willows. The survivorship of plantings will be tallied by species and percent survival will be calculated as follows:

Percent survival of species A = (Number of basins of species A alive/Total number of basins of species A installed) * 100.

Total percent survival will be calculated separately for peripheral halophytes and willows.

Success Criteria

Percent cover of all plant species colonizing the site will be quantified once per year during Years 1, 2, 3, and 5. The percent cover will be measured by monitoring within random 1 m^2 quadrats along random, stratified permanent transects. The transects will span the elevational gradient and the end points of each transect will be marked with metal t-posts. The restoration will be deemed successful if it results in 60% cover of native emergent wetland vegetation and 0.26 acres of created and restored tidal wetland areas when the site is delineated in Year 3.

ONGOING SITE MAINTENANCE

Invasion of the site by invasive, non-native species can impede the establishment of native vegetation. Therefore, the project site will require regular maintenance for a period of three years during the plant establishment period Maintenance activities will occur as needed to

control weeds in the planting areas and throughout the site for the first three years. Maintenance will also include removal of invasive, non-native species, and will be performed manually or with the use of an herbicide approved for use in aquatic settings by the EPA.

Trash deposited on the site by tides or from adjacent property will be removed on a regular basis until the site is established.

PHOTO-DOCUMENTATION

Photo-documentation of the site will be conducted from a number of fixed locations throughout the site in Years 1, 2, 3, and 5. Permanent photo-documentation points will be established and shown on a graphic of the site in the Year 1 monitoring report. Photographs will also be taken outside the fixed points to record any event that may significantly affect the success of the restoration, such as flood, fire or vandalism and will be taken during the annual monitoring visit at the time of vegetation sampling.

Table 4. San Bruno Channel Work Plan Monitoring Schedule.

Monitoring Task	Year 1	Year 2	Year 3	Year 4	Year 5
Plant survival	x	x	x		
Percent cover	x	x	x		x
Site maintenance	x	x	x		
Photo-documentation	x	x	x	x	x

REPORTING

Annual monitoring reports will be submitted to client by November 30 and to the regulatory permitting agencies by December 31 of each monitoring year (Years 1, 2, 3, and 5). Monitoring will be conducted until the final success criteria are met. At the final year of the monitoring period, a monitoring report will be prepared to establish whether the mitigation site has achieved the success criteria. If the site has successfully met the expected performance criteria, a letter will be sent to the permitting/resource agencies acknowledging the site's conditions and requesting their concurrence. It is anticipated that the project will be considered a success by the resource agencies and "signed off" when the performance criteria are met following the end of the monitoring period.

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